DEFENSE INFORMATION SYSTEMS AGENCY
P. O. BOX 4502
ARLINGTON, VIRGINIA 22204-4502

IN REPLY REFER TO: Joint Interoperability Test Command (JTE) **31 Mar 10**

MEMORANDUM FOR DISTRIBUTION

Subject: Special Interoperability Test Certification of the T-Metrics, Inc., Attendant Console, Release Version 2.0

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
(c) through (f), see Enclosure 1

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The T-Metrics, Inc., Attendant Console Release Version 2.0 is hereinafter referred to as the System Under Test (SUT). The SUT meets all of the critical interoperability requirements and is certified for joint use within the Defense Switched Network (DSN). The SUT emulates all the features and functions of the Nortel NT4X09 Meridian Services Attendant Console (MSAC) hard console. The SUT meets all of the critical interoperability requirements and is certified for joint use within the DSN, specifically with the Nortel Communication Server (CS)2100, Meridian Switching Load (MSL)-100, and the Nortel CS1000M Cabinet digital switching Systems on the Unified Capabilities (UC) Approved Products List (APL). The SUT was tested with the Nortel CS2100 with Software Release Succession Enterprise (SE)09.1. The MSL-100 Digital Switching System has similar hardware and software and the same interfaces as the Nortel CS2100. The JITC analysis determined a minor risk in certifying the SUT with other Nortel CS2100 and Nortel MSL-100 digital switching systems on the UC APL. The SUT meets the critical interoperability requirements for attendant services set forth in Reference (c) and testing was conducted using test procedures derived from Reference (d). No other configurations, features, or functions, except those cited within this report, are certified by the JITC. This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.

3. This certification is based on interoperability testing conducted by JITC, review of the vendor's Letters of Compliance (LoC), and Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation. Interoperability testing was conducted by JITC at the Global Information Grid Network Test Facility, Fort Huachuca, Arizona, from 14 through 18 April 2008. Review of vendor's LoC was completed on 29 April 2008. The SUT

supports the same software, interfaces, and functionality as when it was previously tested. The only difference is that the SUT now supports either Microsoft XP or Microsoft Windows Vista operating system platform. A review of the SUT and comparison with the new requirements in Reference (c) was conducted on 15 December 2009 to determine the SUT was certified for interoperability within the DSN without additional interoperability testing. DSAWG granted accreditation on 30 March 2010 based on the security testing completed by DISA-led IA test teams and published in a separate report, Reference (e). The Certification Testing Summary (Enclosure 2) documents the test results and describes the test configuration.

4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are indicated in Table 1.

Table 1. SUT Functional Requirements and Interoperability Status

Interface	Critical	Certified	Functional Requirements	Met	UCR Paragraph
Digital Proprietary Twisted Pair Copper (CS1000M Cabinet) (See note 1.)	Yes	Yes	Precedence and Preemption (R)	Yes	5.2.1.2.1
			Call Display (R)	Yes	5.2.1.2.2
			Class of Service Override (R)	Yes	5.2.1.2.3
			Busy Override and Busy Verification (R)	Yes	5.2.1.2.4
			Night Service (R)	Yes	5.2.1.2.5
			Automatic Recall of Attendant (R)	Yes	5.2.1.2.6
			Calls in Queue to the Attendant (R)	Yes	5.2.1.2.7
Nortel Analog Proprietary (CS2100) (See note 1.)	Yes	Yes	Precedence and Preemption (R)	Yes	5.2.1.2.1
			Call Display (R)	Yes	5.2.1.2.2
			Class of Service Override (R)	Yes	5.2.1.2.3
			Busy Override and Busy Verification (R)	Yes	5.2.1.2.4
			Night Service (R)	Yes	5.2.1.2.5
			Automatic Recall of Attendant (R)	Yes	5.2.1.2.6
			Calls in Queue to the Attendant (R)	Yes	5.2.1.2.7
	Yes	Yes	Security (R)	See note 2.	3.2.3, 3.2.5, and 5.4.6.1

NOTES:
1 This interface is certified with the SUT in either a single- or multiple-console configurations, with or in lieu of the MSAC console. The is SUT certified for joint use within the DSN specifically with the Nortel CS2100, MSL-100, and CS1000M Cabinet digital switching systems on the UC APL.
2 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

LEGEND:

APL	Approved Products List	MSL	Meridian Switching Load
CS	Communication Server	R	Required
DISA	Defense Information Systems Agency	SUT	System Under Test
DSN	Defense Switched Network	UC	Unified Capabilities
MSAC	Meridian Services Attendant Console	UCR	Unified Capabilities Requirements

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and

references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.

6. The JITC point of contact is Mr. Joseph Roby, DSN 879-0507, commercial (520) 538-0507, FAX DSN 879-4347, or e-mail to joseph.roby@disa.mil. The JITC's mailing address is P.O. Box 12798, Fort Huachuca, AZ 85670-2798. The tracking number for the SUT is 0923902.

FOR THE COMMANDER:

2 Enclosures a/s

for RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

Distribution (electronic mail):
Joint Staff J-6
Joint Interoperability Test Command, Liaison, TE3/JT1
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Department of the Army, Office of the Secretary of the Army, DA-OSA CIO/G-6 ASA (ALT), SAIS-IOQ
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DOT&E, Net-Centric Systems and Naval Warfare
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National Security Agency, DT
Defense Information Systems Agency, TEMC
Office of Assistant Secretary of Defense (NII)/DOD CIO
U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities Division, J68
Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

(c) Office of the Assistant Secretary of Defense, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009

(d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 2," 2 October 2006

(e) Joint Interoperability Test Command, "Information Assurance (IA) Assessment of T-Metrics, Inc., Attendant Console, Release Version 2.0 (Tracking Number 0923902)," 30 Month 2010

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. The T-Metrics, Inc., Attendant Console, Release Version 2.0 is hereinafter referred to as the System Under Test (SUT).

2. PROPONENT. United States Air Force, Headquarters, Air Education and Training Command (HQ AETC).

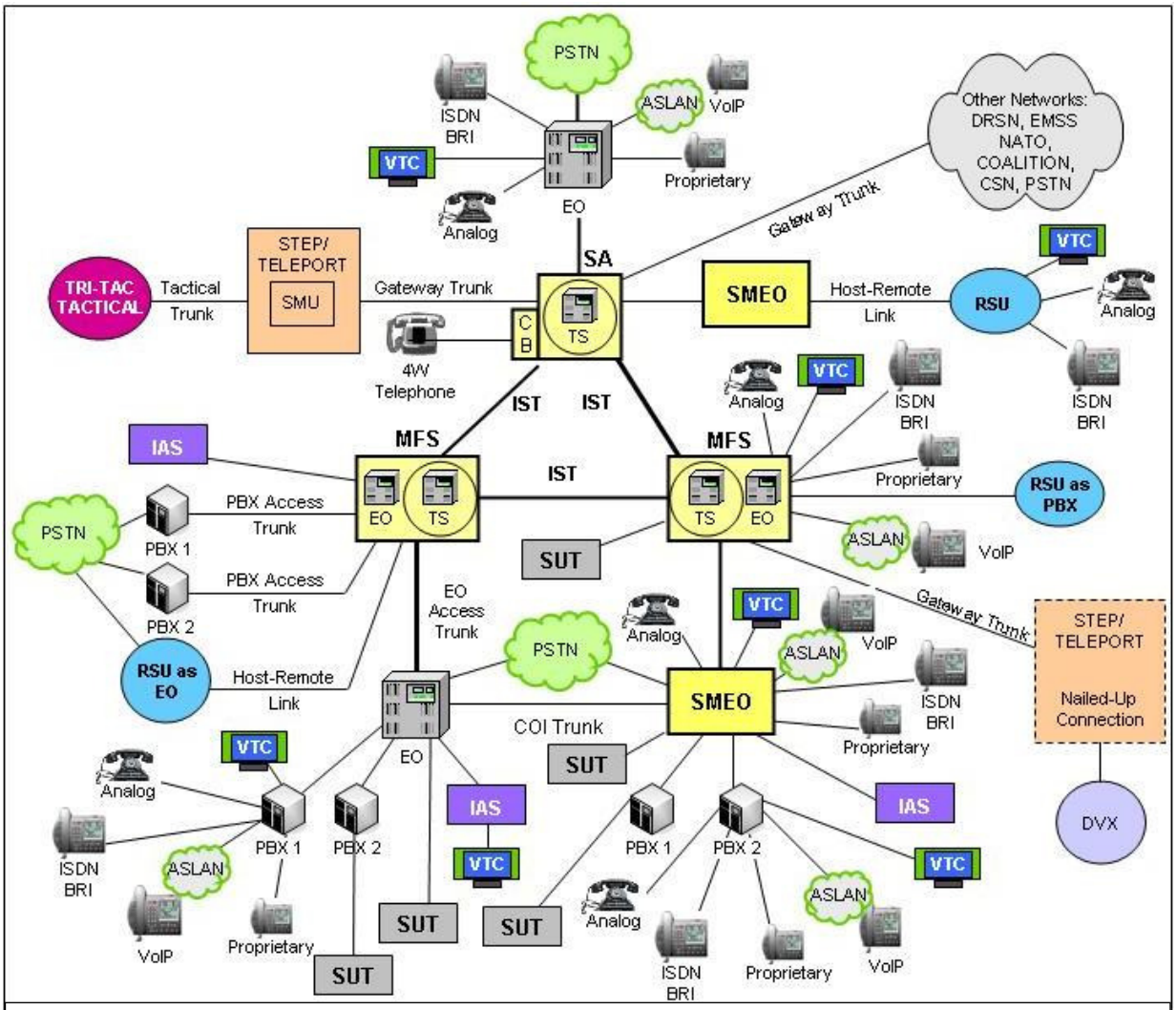
3. PROGRAM MANAGER. Ricky Rider, A6OI, 61 Main Circle, Suite 2, Randolph Air Force Base, Texas, 78150 e-mail: ricky.rider@randolph.af.mil.

4. TESTER. Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.

5. SYSTEM UNDER TEST DESCRIPTION. The SUT is a Personal Computer (PC)-based platform, which emulates the NT4X09 Meridian Services Attendant Console (MSAC) hard console for the Nortel Communication Server (CS) 2100, Meridian Switching Load (MSL)-100 and Nortel CS1000M Cabinet digital switching systems. The SUT can be used in either a single- or multiple-console configuration, with or in lieu of the MSAC console. The SUT PC includes the Attendant Console software and phone server software running on the Windows XP Professional Operating System. The SUT features include:

- answering, parking, holding, and transferring calls.
- position busy, end-to-end signaling, busy verification, and display of queued calls.
- call forwarding, do not disturb, serial calls, trouble key, and trunk access control.
- call-handling, control, and security features.
- set of screen and web-based applications including directory services, paging, messaging, and on-call scheduling.

6. OPERATIONAL ARCHITECTURE. The Unified Capabilities Requirements (UCR) Defense Switched Network (DSN) architecture in figure 2-1 depicts the relationship of the SUT to the DSN switches.



LEGEND:

4W	4-Wire
ASLAN	Assured Services Local Area Network
BRI	Basic Rate Interface
CB	Channel Bank
COI	Community of Interest
CSN	Canadian Switch Network
DRSN	Defense Red Switch Network
DSN	Defense Switched Network
DVX	Deployable Voice Exchange
EMSS	Enhanced Mobile Satellite System
EO	End Office
IAS	Integrated Access Switch
ISDN	Integrated Services Digital Network
IST	Interswitch Trunk
MFS	Multifunction Switch
NATO	North Atlantic Treaty Organization
PBX	Private Branch Exchange
PBX 1	Private Branch Exchange 1
PBX 2	Private Branch Exchange 2
PSTN	Public Switched Telephone Network
RSU	Remote Switching Unit
SA	Standalone
SMEO	Small End Office
SMU	Switched Multiplex Unit
STEP	Standardized Tactical Entry Point
SUT	System Under Test
Tri-Tac	Tri-Service Tactical Communications Program
TS	Tandem Switch
VoIP	Voice over Internet Protocol
VTC	Video Teleconferencing

Figure 2-1. DSN Architecture

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in Table 2-1. These requirements are derived from the UCR Interface and Functional Requirements and were verified through JITC testing.

Table 2-1. SUT Functional Requirements and Interoperability Status

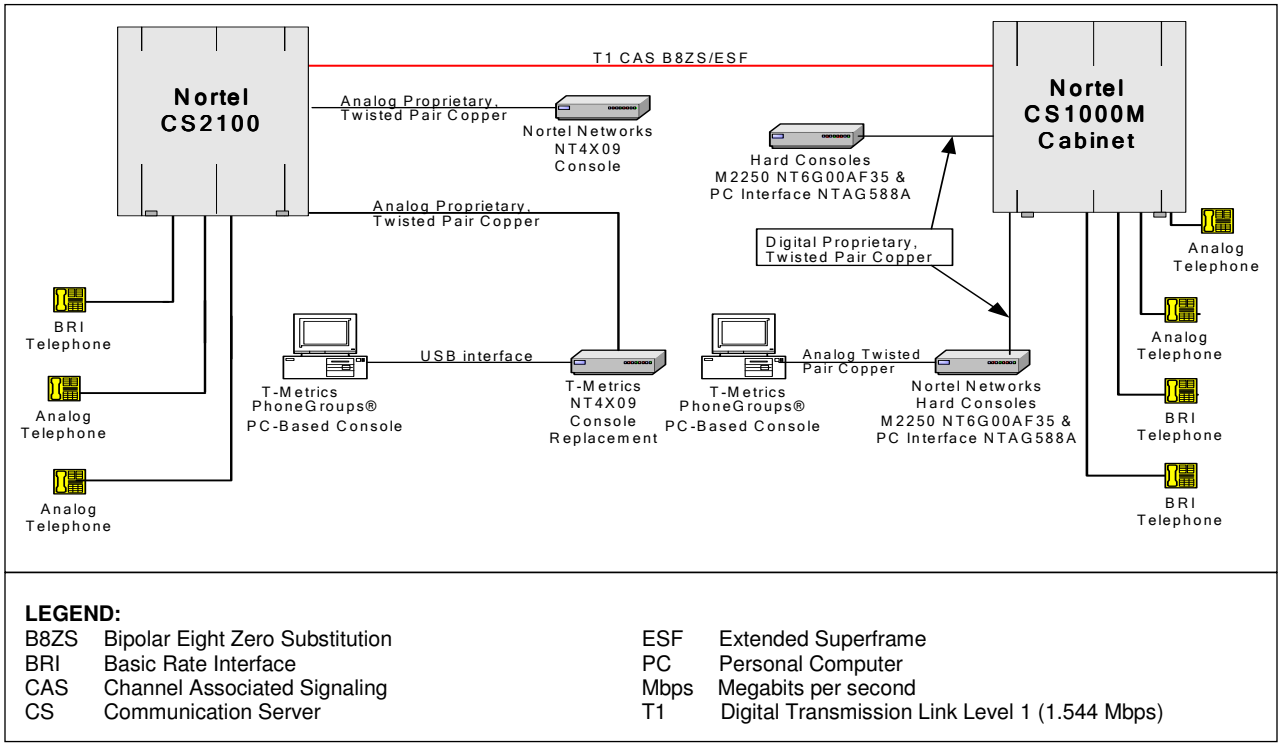
Interface	Critical	Certified	Functional Requirements	Met	UCR Paragraph
Digital Proprietary Twisted Pair Copper (CS1000M Cabinet) (See note 1.)	Yes	Yes	Precedence and Preemption (R)	Yes	5.2.1.2.1
			Call Display (R)	Yes	5.2.1.2.2
			Class of Service Override (R)	Yes	5.2.1.2.3
			Busy Override and Busy Verification (R)	Yes	5.2.1.2.4
			Night Service (R)	Yes	5.2.1.2.5
			Automatic Recall of Attendant (R)	Yes	5.2.1.2.6
			Calls in Queue to the Attendant (R)	Yes	5.2.1.2.7
Nortel Analog Proprietary (CS2100) (See note 1.)	Yes	Yes	Precedence and Preemption (R)	Yes	5.2.1.2.1
			Call Display (R)	Yes	5.2.1.2.2
			Class of Service Override (R)	Yes	5.2.1.2.3
			Busy Override and Busy Verification (R)	Yes	5.2.1.2.4
			Night Service (R)	Yes	5.2.1.2.5
			Automatic Recall of Attendant (R)	Yes	5.2.1.2.6
			Calls in Queue to the Attendant (R)	Yes	5.2.1.2.7
	Yes	Yes	Security (R)	See note 2.	3.2.3, 3.2.5, and 5.4.6.1

NOTES:
1 This interface is certified with the SUT in either a single- or multiple-console configurations, with or in lieu of the MSAC console. The is SUT certified for joint use within the DSN specifically with the Nortel CS2100, MSL-100, and CS1000M Cabinet digital switching systems on the UC APL.
2 Security is tested by DISA-led Information Assurance test teams and published in a separate report, Reference (e).

LEGEND:

APL	Approved Products List	MSL	Meridian Switching Load
CS	Communication Server	R	Required
DISA	Defense Information Systems Agency	SUT	System Under Test
DSN	Defense Switched Network	UC	Unified Capabilities
MSAC	Meridian Services Attendant Console	UCR	Unified Capabilities Requirements

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing the system's required functions and features was conducted using the test configuration depicted in Figure 2-2.



LEGEND:

B8ZS	Bipolar Eight Zero Substitution	ESF	Extended Superframe
BRI	Basic Rate Interface	PC	Personal Computer
CAS	Channel Associated Signaling	Mbps	Megabits per second
CS	Communication Server	T1	Digital Transmission Link Level 1 (1.544 Mbps)

Figure 2-2. Test Configuration

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations, hardware, and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine interoperability with a complement of DSN switches noted in Table 2-2. Table 2-2 lists the DSN switches which depict the tested configuration and is not intended to identify the only switches that are certified with the SUT. The SUT is certified with switching systems listed on the Unified Capabilities (UC) Approved Products List (APL) that offer the same certified interfaces.

Table 2-2. Tested System Configurations

System Name	Hardware/Software Release		
Nortel CS2100	Succession Enterprise (SE)09.1		
Nortel CS100M	Succession Enterprise 4.5w		
Nortel Meridian Services Attendant Console	NT4X09AG		
SUT Release 2.0	**Component**	**Application/Software**	
	Agent Management Workstation	Microsoft Windows Vista SP 2	
	Agent Management Workstation MSAC	PhoneGroups MSAC	PhoneGroups Telephone V6.0
		PhoneGroups Main Console (MBS)	
		PhoneGroups M2250	
		NT 4X09 Console Replacement	V2.1

Table 2-2. Tested System Configurations (continued)

LEGEND:

AV	Anti Virus	NT	Northern Telecom
CS	Communication Server	SE	Succession Enterprise
IE	Internet Explorer	SP	Service Pack
MBS	Meridian Business Set	SUT	System Under Test
MSAC	Meridian Services Attendant Console	V	Version

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion

(1) The UCR, paragraph 5.2.1.2.1, states the attendant console shall interoperate with Multi-Level Precedence and Preemption (MLPP) as described in UCR, section 5.2.2. The console shall be able to initiate all levels of precedence calls (i.e., ROUTINE through FLASH-OVERRIDE). The SUT successfully met the requirements for MLPP as described in section 5.2.2 of reference (c).

(2) The UCR, paragraph 5.2.1.2.2, states the attendant console shall provide a visual display of the calling number, Class of Service (CoS), and precedence level for incoming direct dialed calls and diverted calls to the attendant. The SUT provided a visual display of the calling number, CoS, and precedence level for incoming direct-dialed calls and diverted calls to the attendant.

(3) The UCR, paragraph 5.2.1.2.3, states the attendant shall provide the capability to override any class of service (calling area or precedence) of the calling party on a call-by-call basis. The SUT provided the capability to override any CoS (calling area or precedence) of the calling party on a call-by-call basis.

(4) The UCR, paragraph 5.2.1.2.4, states the attendant shall have the capability to override a busy line condition. If the called line being verified is busy, off-hook supervision shall be given to the attendant performing the busy verification. When a verification code is used, all digits of the code must be dialed before cut-through to the line can be accomplished. Connections to commercial Central Office access lines shall be restricted from busy verification access. The attendant shall have the capability to enter an existing busy line to inform the user of an incoming call. An override tone shall be provided to the busy line prior to the attendant entering the conversation, and the tone shall be repeated periodically as long as the attendant is connected. Selected stations may be classmarked to deny attendant break-in. In particular, it shall be possible to classmark the lines of selected stations (e.g., all data and secure voice) to preclude the busy verification or busy override being applied to the selected station lines. The SUT meets the following Functional Requirements for busy override and busy verification:

(a) The SUT successfully demonstrated the capability to override a busy line condition. If the called line being verified was busy, off-hook supervision was given to the attendant performing the busy verification.

(b) The SUT successfully demonstrated the capability to enter an existing busy line to inform the user of an incoming call. An override tone was provided to the busy line prior to the attendant entering the conversation, and the tone was repeated periodically as long as the attendant was connected.

(5) The UCR, paragraph 5.2.1.2.5, states the attendant console shall have the ability to route all calls normally directed to the console to a night service deflection. The night service deflection shall be a fixed or manually selected directory number. The SUT successfully demonstrated the ability to route all calls normally directed to the console to a night service deflection. The night service deflection was a fixed or manually selected directory number.

(6) The UCR, paragraph 5.2.1.2.6, states when an attendant extends a call to a station that is busy or does not answer within a preset time, the extended party shall be recalled automatically to the console. Recalls shall be transferred to the console that originally processed the call. If that console is busy, the recall shall be placed into the console queue; but if the console is out of service, the recall shall be routed to another console. When an attendant extended a call to a station that was busy or did not answer within a preset time, the extended party was automatically recalled to the console. If that console was busy, the recall was placed into the console queue; if the console was out of service, the recall was routed to another console.

(7) The UCR, paragraph 5.2.1.2.7, states the attendant console shall have the capability to place calls in a waiting queue. Calls placed in queue to the attendant console shall be retrieved by the attendant in order of precedence level (FLASH-OVERRIDE first, ROUTINE last) and longest holding time. Calls in queue shall not be lost when a console is placed out of service or forwarded to night service deflection. When the console is placed out of service or forwarded to night service while calls are in queue the console shall be capable of one of the following solutions: The SUT successfully demonstrated the capability to place calls in a waiting queue. Calls placed in queue to the attendant console were retrieved by the attendant in order of precedence level (FLASH-OVERRIDE first, ROUTINE last) and longest holding time. Calls in queue were not lost when a console was placed out of service or forwarded to night service deflection. When the console was placed out of service or forwarded to night service while calls were in queue, the console was capable of both of the following solutions:

(a) All calls in queue were forwarded first to the centralized attendant, then to night service.

(b) All subsequent calls placed to the attendant console were forwarded first to the centralized attendant and then to night service. The attendant console was able to answer all remaining calls in queue, preventing any calls from being lost.

(8) Security is tested and met by DISA-led Information Assurance test teams and is published in a separate report, Reference (e).

b. Test Summary. The SUT emulates all the features and functions of the Nortel NT4X09 hard console. The SUT met the critical interoperability requirements for an attendant console set forth in Reference (c) and is certified for joint use within the DSN specifically with the Nortel CS2100, MSL-100, and CS1000M Cabinet digital switching systems listed on the UC APL.

12. TEST AND ANALYSIS REPORT. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi. Due to the sensitivity of the information, the Information Assurance Accreditation Package (IAAP) that contains the approved configuration and deployment guide must be requested directly through government civilian or uniformed military personnel from the Unified Capabilities Certification Office (UCCO), e-mail: ucco@disa.mil.